LOW-TEMPERATURE HIGH-RESOLUTION INFRARED SPECTRUM OF ETHANE-1D, C_2H_5D: ROTATIONAL ANALYSIS OF THE ν_{17} BAND NEAR 805 cm^{-1}using ERHAM.

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The high-resolution infrared spectrum of gaseous ethane-d_1 at 130 K shows transitions that are split into A and E components due to the interaction of overall rotation with the internal rotation of the CH_3 group. An analysis of the spectrum from 680 to 900 $cm^{-1}$with an expanded version of the program ERHAM [a,b] is in progress to assign the bands at E(ν_{17}) = 805 $cm^{-1}$and E(ν_{11}) = 715 cm^{-1}. A discussion of the interactions among the fundamental levels of ν_{17} and ν_{11} with overtone levels of ν_{18} and the(CH_3 torsion) will be given. ERHAM has been and continues to be very successful in the analysis of pure the rotational spectra of molecules containing internal rotation and the vibrational spectrum of C_2H_5D serves as an excellent system to test the extension of the program.

[a]P. Groner, *J. Chem. Phys.* **107** 4483 (1997)
[b]P. Groner, *J. Mol. Spectrosc.* **278** 52 (2012)